

Fireflies Flashing in Ozonized Air

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Abstract A living, nonflashing firefly begins to flash intermittently when ozone is added to ambient air. A firefly may stop intermittent flashing because of apparent fatigue or because the air contains insufficient ozone. Intermittent flashing is triggered by a chemical, ozone.

Transfer a nonflashing firefly or lightning bug (*Pyrophorus* Elateridae), whether because of fatigue from flashing or because of lack of ozone in the air to air which contains added ozone. Intermittent flashing begins. It is concluded that ozone triggers intermittent flashing.

In dry weather captive fireflies dried up and died in a day or so. When a drop or two of tap water is placed on top of the open mesh glass cloth cover of the transparent plastic cylindrical container the captive fireflies lived for 10 days. On different evenings a captive firefly flashed intermittently when the zephyrs were from the southwest, west, northwest, north, or northeast. On some evenings the wild fireflies did not flash. On some of these inactive evenings a strong breeze blowed or rain was falling. A captive firefly became dormant after flashing for some time. A nonflashing captive firefly is placed in air which contains added ozone produced by a General Electric Company Ozone Lamp. It begins to flash intermittently.

On the evening of August 18, 1964 wild fireflies were not flashing in the air out of doors. In the late afternoon it rained and the southwest wind was gusty. After the rain the wind subsided. The air became quiescent except for a southern zephyr. The sun had set. In an hour it was almost dark. The air temperature was 85° F. A captive firefly was put the following paces.

AIR CONDITION	FIREFLY BEHAVIOR
On a covered porch. A very gentle shower outside.	No flashing.
On a covered porch. Shower subsided. Northern zephyr.	Intermittent flashing.
On a covered porch. Very gentle shower again.	Two flashes, then no flashing.
In basement of house. Ozone lamps making ozone.	Intermittent flashing.
On a covered porch. No rain, breeze but humid.	No flashing.
In house. Ozone lamps making ozone.	Intermittent flashing.

This multiple experiment epitomizes previous individual observations, which had been replicated several times. In this experiment it is a fact that air in which the electric ozone lamps were making ozone did contain added ozone. It is a fact that a nonflashing firefly began to flash intermittently after it was transferred to air which contained added ozone. The air out of doors, except between showers, did not trigger the intermittent flashing of the firefly. Thus, added ozone to air triggers the intermittent flashing of a living nonflashing firefly.

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